



SEQUENCE LISTING

<110> SYODA, MAKOTO  
SUGANO, YASUSHI  
KUBOTA, HIDETOSHI

<120> NOVEL ENZYME WITH DECOLORIZING ACTIVITY AND METHOD FOR DECOLORIZING DYES  
BY USING THE SAME

<130> 213129US0PCT

<140> US 09/926,084

<141> 2001-08-27

<150> JP99/11-050562

<151> 1999-02-26

<160> 16

<170> PatentIn version 3.1

<210> 1

<211> 6

<212> PRT

<213> Geotrichum candidum

<400> 1

Thr Tyr Val Pro Glu Arg  
1 5

<210> 2

<211> 8

<212> PRT

<213> Geotrichum candidum

<400> 2

Cys Pro Phe Gly Ala His Val Arg  
1 5

<210> 3

<211> 21

<212> PRT

<213> Geotrichum candidum

<400> 3

Ile Pro Tyr Gly Pro Glu Thr Ser Asp Ala Glu Leu Ala Ser Gly Val  
1 5 10 15

Thr Ala Gln Asp Arg  
20

RECEIVED  
APR 16 2002  
TC 1700

<210> 4  
<211> 21  
<212> PRT  
<213> Geotrichum candidum

<400> 4

Ser Gly Ala Pro Ile Asp Leu Ala Pro Thr Ala Asp Asp Pro Ala Leu  
1 5 10 15

Gly Ala Asp Pro Gln  
20

<210> 5  
<211> 6  
<212> PRT  
<213> Geotrichum candidum

<400> 5

Pro Tyr Gly Pro Glu Thr  
1 5

<210> 6  
<211> 6  
<212> PRT  
<213> Geotrichum candidum

<400> 6

Pro Thr Ala Asp Asp Pro  
1 5

<210> 7  
<211> 498  
<212> PRT  
<213> Geotrichum candidum

<400> 7

Met Asp Leu Ser Leu Phe Val Val Ser Val Ala Val Leu Val Gly Ser  
1 5 10 15

Ser Ser His Val Asn Ala Ala Lys Leu Gly Ala Arg Gln Thr Arg Thr  
20 25 30

Thr Pro Leu Leu Thr Asn Phe Pro Gly Gln Ala Pro Leu Pro Thr Leu  
35 40 45

Thr Gln His Thr Thr Glu Ser Gly Ala Asn Asp Thr Ile Leu Pro Leu  
50 55 60

Asn Asn Ile Gln Gly Asp Ile Leu Val Gly Met Lys Lys Gln Lys Glu  
65 70 75 80

Arg Phe Val Phe Phe Gln Val Asn Asp Ala Thr Ser Phe Lys Thr Ala  
85 90 95

Leu Lys Thr Tyr Val Pro Gln Arg Ile Thr Ser Ala Ala Ile Leu Ile  
100 105 110

Ser Asp Pro Ser Gln Gln Pro Leu Ala Phe Val Asn Leu Gly Phe Ser  
115 120 125

Asn Thr Gly Leu Gln Ala Leu Gly Ile Thr Asp Asp Leu Gly Asp Ala  
130 135 140

Gln Phe Pro Asp Gly Gln Phe Ala Asp Ala Ala Asn Leu Gly Asp Asp  
145 150 155 160

Leu Ser Gln Trp Val Ala Pro Phe Thr Gly Thr Thr Ile His Gly Val  
165 170 175

Phe Leu Ile Gly Ser Asp Gln Asp Asp Phe Leu Asp Gln Phe Thr Asp  
180 185 190

Asp Ile Ser Ser Thr Phe Gly Ser Ser Ile Thr Gln Val Gln Ala Leu  
195 200 205

Ser Gly Ser Ala Arg Pro Gly Asp Gln Ala Gly His Glu His Phe Gly  
210 215 220

Phe Leu Asp Gly Ile Ser Gln Pro Ser Val Thr Gly Trp Glu Thr Thr  
225 230 235 240

Val Phe Pro Gly Gln Ala Val Val Pro Pro Gly Ile Ile Leu Thr Gly  
245 250 255

Arg Asp Gly Asp Thr Gly Thr Arg Pro Ser Trp Ala Leu Asp Gly Ser  
260 265 270

Phe Met Ala Phe Arg His Phe Gln Gln Lys Val Pro Glu Phe Asn Ala

275	280	285
Tyr Thr Leu Ala Asn Ala Ile Pro Ala Asn Ser Ala Gly Asn Leu Thr 290 295 300		
Gln Gln Glu Gly Ala Glu Phe Leu Gly Ala Arg Met Phe Gly Arg Trp 305 310 315 320		
Lys Ser Gly Ala Pro Ile Asp Leu Ala Pro Thr Ala Asp Asp Pro Ala 325 330 335		
Leu Gly Ala Asp Pro Gln Arg Asn Asn Asn Phe Asp Tyr Ser Asp Thr 340 345 350		
Leu Thr Asp Glu Thr Arg Cys Pro Phe Gly Ala His Val Arg Lys Thr 355 360 365		
Asn Pro Arg Gln Asp Leu Gly Gly Pro Val Asp Thr Phe His Ala Met 370 375 380		
Arg Ser Ser Ile Pro Tyr Gly Pro Glu Thr Ser Asp Ala Glu Leu Ala 385 390 395 400		
Ser Gly Val Thr Ala Gln Asp Arg Gly Leu Leu Phe Val Glu Tyr Gln 405 410 415		
Ser Ile Ile Gly Asn Gly Phe Arg Phe Gln Gln Ile Asn Trp Ala Asn 420 425 430		
Asn Ala Asn Phe Pro Phe Ser Lys Pro Ile Thr Pro Gly Ile Glu Pro 435 440 445		
Ile Ile Gly Gln Thr Thr Pro Arg Thr Val Gly Gly Leu Asp Pro Leu 450 455 460		
Asn Gln Asn Glu Thr Phe Thr Val Pro Leu Phe Val Ile Pro Lys Gly 465 470 475 480		
Gly Glu Tyr Phe Phe Leu Pro Ser Ile Ser Ala Leu Thr Ala Thr Ile 485 490 495		
Ala Ala		

<210> 8  
 <211> 1494  
 <212> DNA  
 <213> *Geotrichum candidum*

<400> 8  
 atgcgcttgt cgctgtttgt cgtgtcgggt gccgtactcg tcgggtcgag ctgcgatgtc 60  
 aatgttgcta aactcggcgc gagacagacg cgtacgacac ccctcctcac taattttccg 120  
 ggacaagccc cgctgccgac tctaacgcag catacgactg agagcggggc caacgataca 180  
 attctgcccc tgaacaacat acaaggcgac attttggttg gcatgaagaa acagaaggaa 240  
 cgcttcgtct ttttccaagt caatgacgca acctcggttc agacggcggt gaagacctac 300  
 gtgcctgagc gcatcacgtc ggcggcgatt ttgatttcag atccttctca gcagccggtg 360  
 gctttcgtca acctcggggt ttcgaacaca ggccctccagg cgcttggaat taccgacgat 420  
 ctgggtgatg cacaattccc agatgggtcag ttgcgacagc ccgcaaacct cggggacgac 480  
 ctccagccaat ggggtggcgcc ttttactggt accaccatcc atgggtgtct tctgattggt 540  
 agcgaccagg acgacttctt ggatcagttc acggatgata tctcttcgac ctttggttcc 600  
 tccatcactc aggtgcaggc gctcagtggg tctgcgcgtc caggagatca ggctggatcat 660  
 gaacacttcg gggttcctcg cggcatctcg cagccctcag tcacaggctg ggagacgacc 720  
 gtcttccctg gacaggcgggt cgtcccacct ggaattatcc tctactggac cgatggggac 780  
 acgggcaccc gaccgtcgtg ggctctagat gggagtttca tggcattccg gcacttccag 840  
 cagaagggtc ccgaattcaa cgcgtacacg ctccccaacg cgataccgcg gaacagcgcg 900  
 ggaaacctca ccagcagga aggtgcagag ttctcggcg cgcgcatgtt cggccggttg 960  
 aagagcggcg cgccgattga cctcgcgccg acggcggacg acccagcgct cggcgccgac 1020  
 ccgcagagga acaacaattt cgattactca gacacgctga cggacgagac gcgctgcccc 1080  
 ttccgtgcac acgtgaggaa gacgaacct cgacaggacc tgggtggacc ggtcgacacc 1140  
 ttccacgcta tgcggtccag tatcccgta gggccagaaa cgtctgatgc agaacttgcg 1200  
 tcgggcgtga ctgcgcaaga ccgcgggtct ctttctcgct agtaccagtc cattattggt 1260  
 aatgggttca gggtccagca gattaactgg gcgaacaatg cgaacttccc tttctccaaa 1320  
 ccgatcacgc ctggaattga gcctatcatc ggccagacga ctccacgcac tgtcggcggg 1380  
 ctcgaccccc tcaaccagaa tgagacgttc acagtaccgc tgtttgatgat cccgaaggcg 1440  
 ggggaatact ttttcttgcc ctctatctct gcgctcactg cgactatcgc tgct 1494

<210> 9  
 <211> 26  
 <212> PRT  
 <213> *Geotrichum candidum*

<220>  
 <221> NON\_CONS  
 <222> (13)..(14)  
 <223>

<400> 9

Gln Ala Pro Leu Pro Thr Leu Thr Gln His Thr Thr Glu Val Ala Pro  
 1 5 10 15

Phe Thr Gly Thr Thr Ile His Gly Val Phe  
 20 25

<210> 10  
 <211> 26  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<220>  
 <221> NON\_CONS  
 <222> (13)..(14)  
 <223>

<400> 10

Gly Pro Val Leu Val Arg Leu Ala Trp His Thr Ser Gly Arg Glu Val  
 1 5 10 15

Val Ala Leu Met Gly Ala His Ala Leu Gly  
 20 25

<210> 11  
 <211> 26  
 <212> PRT  
 <213> *Escherichia coli*

<220>  
 <221> NON\_CONS  
 <222> (13)..(14)  
 <223>

<400> 11

Ala Gly Leu Phe Ile Arg Met Ala Trp His Gly Ala Gly Glu Thr Val  
 1 5 10 15

Ala Leu Ile Ala Gly Gly His Thr Leu Gly  
 20 25

<210> 12  
 <211> 26  
 <212> PRT  
 <213> *Arthromyces ramosus*

<220>  
 <221> NON\_CONS  
 <222> (13)..(14)  
 <223>

<400> 12

Val Arg Lys Ile Leu Arg Ile Val Phe His Asp Ala Ile Asp Glu Val  
 1 5 10 15

Val Asp Leu Leu Ala Ala His Ser Leu Ala  
 20 25

<210> 13  
 <211> 26  
 <212> PRT  
 <213> *Phanerochaete*

<220>  
 <221> NON\_CONS  
 <222> (13)..(14)  
 <223>

<400> 13

Ala His Glu Val Ile Arg Leu Thr Phe His Asp Ala Ile Phe Glu Val  
 1 5 10 15

Val Ser Leu Leu Ala Ser His Thr Val Ala  
 20 25

<210> 14  
 <211> 26  
 <212> PRT  
 <213> *Phanerochaete chrysosporium*

<220>  
 <221> NON\_CONS

<222> (13)..(14)  
<223>

<400> 14

Ala His Glu Ser Ile Arg Leu Val Phe His Asp Ser Ile Leu Glu Leu  
1 5 10 15

Val Trp Met Leu Ser Ala His Ser Val Ala  
20 25

<210> 15  
<211> 26  
<212> PRT  
<213> Tunip

<220>  
<221> NON\_CONS  
<222> (13)..(14)  
<223>

<400> 15

Gly Ala Ser Ile Leu Arg Leu Phe Phe His Asp Cys Phe Arg Asp Met  
1 5 10 15

Val Ala Leu Ser Gly Ala His Thr Ile Gly  
20 25

<210> 16  
<211> 26  
<212> PRT  
<213> horse radish

<220>  
<221> NON\_CONS  
<222> (13)..(14)  
<223>

<400> 16

Ala Ala Ser Ile Ile Arg Leu His Phe His Asp Cys Phe Ser Asp Leu  
1 5 10 15

Val Ala Leu Ser Gly Gly His Thr Phe Gly  
20 25